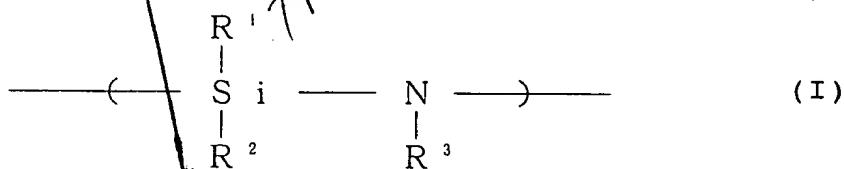


CLAIMS

5 1. A photosensitive polysilazane composition comprising a polysilazane and a photoacid generator.

10 2. The photosensitive polysilazane composition according to claim 1 wherein said polysilazane is mainly a polysilazane, or its modification product having a number average molecular weight of 100 to 50,000, that contains the skeleton represented with the following general formula (I):



15 (wherein,  $R^1$ ,  $R^2$  and  $R^3$  respectively and independently represent a hydrogen atom, an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, a group other than these groups in which the portion bonded directly to silicon or nitrogen is carbon, an alkylsilyl group, an alkylamino group or an alkoxy group).

20 3. The photosensitive polysilazane composition according to claim 1 wherein said polysilazane is mainly a polysilazane having a number average molecular weight of 100 to 100,000 that contains the skeleton represented with the following general formula (II):



25 (wherein,  $R^4$  and  $R^5$  respectively and independently represent a hydrogen atom, an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, a group other than these groups in which the portion bonded directly to silicon or nitrogen is carbon, an alkylsilyl group, an alkylamino group or an alkoxy group, and  $n$  is an arbitrary integer).

30 4. The photosensitive polysilazane composition according to claim 3 wherein, in the above formula (II),

R<sup>4</sup> is a methyl group or phenyl group, and R<sup>5</sup> is a hydrogen atom.

5. The photosensitive polysilazane composition according to claim 2 wherein said polysilazane modification product is a polyorganosiloxazane having a number average molecular weight of 300 to 100,000 that contains, as its main repeating unit, -(RSiN<sub>3</sub>)-, -(RSiN<sub>2</sub>O)-, (RSiNO<sub>2</sub>)- and -(RSiO<sub>3</sub>)- (wherein, R is an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, an alkylamino group or an alkylsilyl group).

10. The photosensitive polysilazane composition according to any one of claims 2 through 5 wherein said photoacid generator is a peroxide.

15. The photosensitive polysilazane composition according to claim 6 wherein said peroxide is t-butyl peroxybenzoate, 3,3',4,4'-tetra(t-butylperoxycarbonyl)benzophenone or  $\alpha,\alpha'$ -bis(t-butylperoxy)diisopropylbenzene.

20. The photosensitive polysilazane composition according to any one of claims 1 through 7 that additionally contains a sensitizing dye.

25. The photosensitive polysilazane composition according to claim 8 wherein said sensitizing dye is selected from coumarin, ketocoumarin and their derivatives and thiopyrylium salts.

10. The photosensitive polysilazane composition according to either of claims 8 or 9 that additionally contains an oxidation catalyst.

30. The photosensitive polysilazane composition according to claim 10 wherein said oxidation catalyst is palladium propionate.

35. A method of forming a patterned polysilazane film comprising: a step in which a coated film is formed of a photosensitive polysilazane composition comprising a polysilazane and a photoacid generator, a step in which said coated film is exposed to light in a pattern, and a step in which the exposed portion of said coated film is

dissolved off.

13. The method according to claim 12 wherein, said dissolving off step is performed using a weakly alkaline aqueous solution.

14. A method of forming a patterned insulating film containing a step in which a patterned polysilazane film formed by the method according to claim 12 is converted to a silica-based ceramic coating by allowing the film to stand in an ambient atmosphere or by baking the film.

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*A) and*



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